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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/511,975

10/20/2004

Guido Odilon Maurits D'Hoogh

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08/02/2006

EXAMINER

RU, POWEN

PHILIPS INTELLECTUAL PROPERTY & STANDARDS

P.O. BOX 3001

BRIARCLIFF MANOR, NY 10510

ART UNIT

PAPER NUMBER

2194

DATE MAILED: 08/02/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

## Office Action Summary

**Application No.**

10/511,975

**Applicant(s)**D'HOOGH, GUIDO ODILON  
MAURITS**Examiner**

Powen Ru

**Art Unit**

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– The MAILING DATE of this communication appears on the cover sheet with the correspondence address –

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 20 October 2004.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-12 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-12 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 20 October 2004 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All    b) ☐ Some \*    c) ☐ None of:
- 1) ☒ Certified copies of the priority documents have been received.
  - 2) ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  - 3) ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- |   |   |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)   | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)  | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)             |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date <u>20041020, 20050502</u> . | 6) <input type="checkbox"/> Other: _____  |

### **DETAILED ACTION**

This is the initial office action based on the application filed on 10/20/2004.

Claims 1-12 are currently pending and have been considered below.

#### ***Drawings***

1. Figure 3 should be designated by a legend such as --Prior Art-- because only that which is old is illustrated. See MPEP § 608.02(g). Corrected drawings in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. The replacement sheet(s) should be labeled "Replacement Sheet" in the page header (as per 37 CFR 1.84(c)) so as not to obstruct any portion of the drawing figures. If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

2. The drawings are objected to as failing to comply with 37 CFR 1.84(p)(5) because they include the following reference character(s) not mentioned in the description: 28 and 311 (Fig. 5). Corrected drawing sheets in compliance with 37 CFR 1.121(d), or amendment to the specification to add the reference character(s) in the description in compliance with 37 CFR 1.121(b) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. Each drawing sheet submitted after the filing

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date of an application must be labeled in the top margin as either "Replacement Sheet" or "New Sheet" pursuant to 37 CFR 1.121(d). If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

### ***Specification***

3. The abstract of the disclosure is objected to as failing to comply with 37 CFR 1.72(a), because it exceeds 150 words in length (161 words); the first sentence is incomplete; and the second reference number of two external magnet pole elements should be 15 instead of 13 (line 7 (57) of WO 03/092323 A1). The abstract should be in narrative form and generally limited to a single paragraph on a separate sheet within the range of 50 to 150 words. The Applicant may remove the reference numbers to reduce word count. Correction is required.

4. The disclosure is objected to because of the following informalities:

- Missing content headings, e.g., "BACKGROUND OF THE INVENTION", "SUMMARY OF THE INVENTION", "BRIEF DESCRIPTION OF THE DRAWINGS", "DETAILED DESCRIPTION", etc.
- Grammatical error: "building-in space" (page 3, end of third paragraph) should be "built-in space" .

Appropriate correction is required.

### ***Claim Objections***

5. Claims 1: Where a claim sets forth a plurality of elements or steps, each element or step of the claim should be separated by a line indentation to comply with 37 CFR 1.75(i).

6. Claim 9 and 12 are objected under 37 CFR 1.75(c), as being of improper dependent form for failing to further limit the subject matter of a previous claim. The Office considers any claim which refers to another claim as being a dependent claim. Applicant is required to cancel the claim(s), or amend the claim(s) to place the claim(s) in proper dependent form, or rewrite the claim(s) in independent form.

Claim 9 which is drawn to a loudspeaker assembly does not further limit the electromagnetic driving unit as claimed in Claim 1. The Applicant may simply recite all of the limitations in Claim 1 to overcome this objection.

Claim 12 which is drawn to a loudspeaker unit does not further limit the loudspeaker assembly as claimed in Claim 9. The Applicant may simply recite all of the limitations in Claim 9 to overcome this objection.

### ***Claim Rejections - 35 USC § 102***

7. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

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8. Claims 1-5 and 7-9 are rejected under 35 U.S.C. 102(b) as being anticipated by Kobayashi (JP10-023591A). The following is a partial translation:

[0002] The conventional loudspeaker which has arranged the voice coil Vc in the repulsion field produced on the periphery of both the magnets M1 and M2 using the repulsion type magnetic circuit 11 which arranges and becomes is shown, as for drawing 3, both the magnets M1 and the center plate Cp which consists of magnetic material among M2 are fastened so that a like-pole side may counter magnets M1 and M2, and this magnetic circuit is held with the electrode holder H which consists of nonmagnetic material. In addition, in order to raise flux density, the outer ring Or which is from magnetic material on the periphery side of said center plate Cp may be arranged. In drawing, f shows magnetic flux.

[0012] Drawing 1 is the sectional view of the whole loudspeaker which used the repulsion type magnetic circuit 1, and drawing 2 is the expanded sectional view of the repulsion type magnetic circuit 1. In this invention, while arranging magnets M1 and M2 so that a like-pole side may counter, the submagnet M4 of the magnets M1 and M2 of Maine which counters in the loudspeaker which comes to arrange a voice coil Vc in the repulsion field produced on the periphery of both the magnets M1 and M2 which the magnetization direction was changed, namely, magnetized it in the radiation direction in these magnets M1 and M2 up and down is arranged.

[0013] The magnets M1 and M2 of Maine are magnetized in the thickness direction, and in order to secure magnetic-flux capacity, while the conventional thing and the thing of the same thickness are used, and being arranged so that N poles or the south pole may counter on both sides of the center plate Cp and being held with an electrode holder H, the outer ring Or is arranged so that it may be located in the periphery of said center plate Cp.

[0014] The submagnet M4 is magnetized in the radiation direction so that a periphery side may become N pole or the south pole, and it carries out adhesion immobilization of this in the vertical side of said Maine magnets M1 and M2. Therefore, as for the pole section Ha of an electrode holder H, only the thick status of the submagnets M4 and M4 of two sheets is long.

[0015] In drawing 1, there are a diaphragm 2, a damper 4, a chamber 3, an edge 5 and a frame 6. Although + field is going from the center plate Cp in the magnetic flux f of drawing 2 in the direction of a periphery in which the sense (arrow head) of magnetic flux crosses a voice coil Vc, i.e., the direction, and the magnetic flux which returns in the direction of inner circumference of the center plate Cp is - field, the field of the aforementioned + field can be extended in the vertical direction, as it prevents that magnetic flux f returns to the center plate Cp and arrow indicator 7 shows it, so that clearly from drawing 2. Therefore, tone quality is not degraded in the loudspeaker unit which needs the big amplitude.

Claim 1: Kobayashi discloses an electromagnetic driving unit (repulsion type magnetic circuit 1 [0012]) for a loudspeaker assembly, which driving unit comprises a magnet part (magnet M1-2, center plate Cp, and submagnet M4 [0012-0013]) and a coil part (voice coil Vc [0012]) which is capable of magnetically cooperating with the magnet

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part, the coil part being translatable along a translation axis with respect to the magnet part (see Fig. 2), the magnet part comprising two permanent magnets (magnet M1-2 [0012]) and an intermediate magnetic pole element (center plate Cp [0013]) which is sandwiched between the permanent magnets when viewed along the translation axis of the coil part (see Fig. 2), the intermediate magnetic pole element having a pole face which is magnetically directed towards an inner face of the coil part, wherein the magnet part further comprises two external magnetic pole elements (submagnet M4 ([0012]), the permanent magnets and the intermediate magnetic pole element being sandwiched between the external magnetic pole elements (see Fig. 2), which have pole faces which are magnetically directed towards an outer face of the coil part.

Claim 2: Kobayashi discloses an electromagnetic driving unit as in Claim 1; and further discloses that the coil part is situated between the two external magnetic pole elements (see Fig. 2).

Claim 3: Kobayashi discloses an electromagnetic driving unit as in Claim 1; and further discloses that the coil part comprises a cylindrical coil (voice coil Vc [0012]) having a coil axis which extends parallel to the translation axis of the coil part or which coincides with the translation axis of the coil part (arrow indicator 7 [0015], see Fig. 2).

Claim 4: Kobayashi discloses an electromagnetic driving unit as in Claim 1; and further discloses that the two permanent magnets of the magnet part are magnetized in directions parallel to the translation axis of the coil part (arrow indicator 7 [0015], see Fig. 2), the magnetization direction of the one magnet being opposed to the magnetization of the other magnet (N or S counter on both sides [0013], see Fig. 2).

Claim 5: Kobayashi discloses an electromagnetic driving unit as in Claim 1; and further discloses that the pole elements are made of a ferromagnetic material (e.g., magnetic material [0002]).

Claim 7: Kobayashi discloses an electromagnetic driving unit as in Claim 1; and further discloses that the pole face of the intermediate magnetic pole element (corners of the center plate Cp) has a radial dimension which increases from the permanent magnets towards a central portion of the pole face (see Fig. 2 or 3), viewed along the translation axis of the coil part.

Claim 8: Kobayashi discloses an electromagnetic driving unit as in Claim 1; and further discloses that the pole face of the intermediate magnetic pole element is a convex surface (see Fig. 2 or 3).

Claim 9: Kobayashi discloses an electromagnetic driving unit as in Claim 1; and further discloses a loudspeaker assembly (whole loudspeaker [0012], see Fig. 1) provided with a frame (6 [0015]), a diaphragm (2 [0015]), and the electromagnetic driving unit. The diaphragm is attached to the coil part of the driving unit and is flexibly connected to the frame (through edge 5 [0015], see Fig. 1).

### ***Claim Rejections - 35 USC § 103***

9. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

10. Claim 6 and 12 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kobayashi (JP10-023591A) in view of Azima et al. (6,151,402)

Claim 6: Kobayashi discloses an electromagnetic driving unit as in Claim 1; but does not specifically disclose that the pole faces of the external magnetic pole elements are formed by edge portions inclining towards the coil part. However, Azima et al. discloses a vibration transducer with the pole (14, col 5 lines 35-40) faces formed by edge portions (peripheral flange 90, col 5 lines 39-40, Fig. 4) inclining towards the coil part (13, see Fig. 4). Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to use pole elements with said structure. As the inclining edge portions shorten the magnet flux path, one would have been motivated to use Azima's external magnetic pole elements in Kobayashi's electromagnetic driving unit to increase the efficiency of the loudspeaker.

Claim 12: Kobayashi discloses a loudspeaker assembly as in Claim 9; but does not specifically disclose an enclosure with it. However, Azima et al. discloses a conventional loudspeaker enclosure (e.g., col 4 lines 35-40). Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to mount a loudspeaker assembly on a loudspeaker enclosure or housing. As the enclosure supports the loudspeaker assembly and provides design flexibility, one would have been motivated to combine Kobayashi's loudspeaker assembly with the conventional loudspeaker enclosure disclosed by Azima et al. to make a loudspeaker unit.

11. Claim 10-11 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kobayashi (JP10-023591A) in view of Sakamoto (JP2001-078293A). The following is a partial translation of Sakamoto:

[0027] Then, in drawing 2 (A), after assembling a voice coil 5 and inserting in coil installation section 30c of a fixture 30, hole 1a of a diaphragm 1 is inserted in voice coil periphery section 5a. Thereby, a diaphragm 1 and a voice coil 5 are assembled as shown in drawing 2 (B), and they are set to the location of normal on a fixture 30. A diaphragm 1 and a voice coil 5 are set to the location which piled up the center line of the five voice coil cross direction on the center line of the thickness direction of a diaphragm 1 as shown in the local enlarged drawing of drawing 2 (B). Therefore, the upper limit section and the lower limit section of a voice coil 5 are arranged from skin material 2 front faces of a diaphragm 1 at a respectively equal distance, and the inside flange 22 of a diaphragm 1 is arranged at the core of the winding width direction of a voice coil 5.

[0030] Next, drawing 3 shows the sectional view and local enlarged drawing of the repulsion magnetic-circuit mold flat-surface loudspeaker equipped with the diaphragm 1 with a voice coil 5 of drawing 2. The repulsion magnetic-circuit mold flat-surface loudspeaker of drawing 3 is equipped with the repulsion magnetic circuit 8 like drawing 6. The periphery section of an edge 4 is fixed to a frame 7, and the periphery section of the plate 11 of the repulsion magnetic circuit 8 is equipped with the diaphragm 1 with a voice coil 5 with fixed path clearance.

Claim 10: Kobayashi discloses a loudspeaker assembly as in Claim 9; but does not specifically disclose that the diaphragm is fixed to the coil part in an area extending between the two external magnetic pole elements. However, Sakamoto discloses a repulsion magnetic circuit type plane speaker with a diaphragm fixed to the coil part (diaphragm 1 is inserted in voice coil peripheral section 5a [0027], Fig. 2) in an area extending between the two external magnetic pole elements (see Fig. 3). Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to fix the diaphragm to the coil part. With the diaphragm directly connected to the voice coil, the height of the loudspeaker can be reduced. One would have been motivated to fix the diaphragm to the coil part as suggested by Sakamoto in Kobayashi's loudspeaker assembly to save the space.

Claim 11: Kobayashi discloses a loudspeaker assembly as in Claim 9; but does not specifically disclose that the diaphragm extends from the coil part in a substantially radial direction with respect to the translation axis of the coil part. However, Sakamoto discloses a repulsion magnetic circuit type plane speaker with a diaphragm extending from the coil part in a substantially radial direction with respect to the translation axis of the coil part ([0030] and Fig. 3). Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to arrange the diaphragm as described. One would have been motivated to arrange the diaphragm as suggested by Sakamoto in Kobayashi's loudspeaker assembly. With such an arrangement, the diaphragm will move directly with the driving force of the voice coil thus improving vibration consistency of the loudspeaker.

### ***Conclusion***

12. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure: Sakamoto (5,734,131) discloses a speaker mount structure of vehicle.

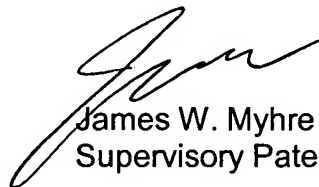
Any inquiry concerning this communication or earlier communications from the examiner should be directed to Powen Ru whose telephone number is 571-270-1050. The examiner can normally be reached on Monday-Thursday 7:30am-3:30pm EST/EDT.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, James Myhre can be reached on 571-270-1065. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.



PR  
7/26/2006



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